GREAT SOUTH

Southland Regional Development Agency

Greenhouse Gas Emissions Inventory Report

FY 2022 - 2023

IMPARTIAL CARBON FOOTPRINT REVIEW

TO THE **DIRECTORS OF SOUTHLAND REGIONAL DEVELOPMENT AGENCY**

Reporter: Southland Regional Development Agency (Great South)
Registered address: 143 Spey Street, Invercargill, New Zealand

Ekos Kamahi Limited was engaged to conduct an impartial review of the greenhouse gas (GHG) calculations and associated organisational emissions reported by Great South. The review was completed on 28 May 2024. The intended users of this review are Ekos Kāmahi Limited (GHG Programme) and Great South. The determination of the GHG emissions and the sufficiency of the procedures is the sole responsibility of the intended users. Ekos Kamahi Limited was not involved in determining the GHG emissions. Our sole responsibility was to provide an impartial review on the accuracy of the GHG emissions quantification based on agreed-upon procedures.

The procedures as agreed with the Ekos GHG Programme included select parts of ISO 14064-1:2018, specifically:

- Organisational Boundary and Reporting Boundary.
- Consolidation Approach (Operational Control) and its application.
- Quantification of emissions.
- Materiality is set at 5%.
- Remote/desk-top review, and
- No verification of source activity data.

A separate findings log was documented and issued to Great South. There were no material findings issued.

- Total Gross GHG Emissions: 246.0 tonnes CO2e
- Period: 1 July 2022 to 30 June 2023
- Quantification reference: Master calculator Ekos F23 v5

Josh Leenhouwers, Reviewer
Ekos Kamahi Limited
Nelson, New Zealand
29th May 2024

Report Title:	Greenhouse Gas Emissions Inventory Great South FY 2022-2023
Measurement period:	1/07/2022 to 30/06/2023
Base year period:	1/07/2018 to 30/06/2019
Prepared by:	Jongwook Kim Strategic Projects Engineer
Reviewed by:	Paula López Sustainability Planner Stephen Canny General Manager Strategic Projects
Independent peer reviewed by:	Josh Leenhouwers Carbon Analyst Ekos 28/05/2024 Stephen Canny General Manager Strategic Projects Date: 12/03/2024 Date: 14/05/2024
Contact:	Great South 143 Spey Street Invercargill 9840 Southland New Zealand

Disclaimer

This report has been prepared by Great South (Southland Regional Development Agency) with all reasonable skill and diligence. Great South does not accept any kind of responsibility for third parties' use of the content. Interpretations, analyses, or statements made by third parties based on this report are beyond Great South's responsibility.
The scope of this report includes emissions from Space Operations New Zealand Limited (Space Ops). Great South owns 100% of Space Ops and provides administrative and logistical support.
If you have any suggestions, complaints, or any other feedback, please contact us at info@greatsouth.nz

Availability

This report will be accessible electronically to the public through the sustainability section of our website. A summary of the inventory will also be published in our Annual Report.

Statement

This inventory is consistent with the International Standards Organisation's process for calculating and reporting GHG emissions 14064-1 (2018). However, while this measurement has been external reviewed as consistent with the ISO standard, it is an unverified inventory. This aim of this report and inventory is to achieve Ekos certification 'Carbon Conscious.'

Document Control

Version Log

Version	Date	Author	Description
v5	09/10/2023	J Kim	Initial draft revised
v6	17/04/2024	J Kim	Revised draft
v7	08/05/2024	J Kim	Final draft revised
v8	28/05/2024	J Kim	Final draft revised

Review Log

Version	Date	Reviewed by	Comment
v5	20/10/2023	P López	Feedback and revision
v6	12/03/2024	S Canny	Feedback and revision
v7	14/05/2024	C Abeysinghe	Approved for release
v8	28/05/2024	P López	Feedback and revision

Executive Summary

This report represents Great South's fourth greenhouse gas (GHG) emissions inventory, measuring emissions from activities during the 2022/23 Financial Year (FY). The inventory follows the World Resource Institute's 'Greenhouse Gas Protocol: a corporate accounting and reporting standard' (GHG Protocol) and 'ISO 14064-1 (2018) Specification with guidance at the organisation level for quantification and reporting of GHG emissions and removals' (ISO 14064-1, 2018).

Activities within the organisational boundaries generated approximately 246.0 metric tonnes of carbon dioxide equivalent (tCO_2e) in the 2022/23 FY.

Business travel contributed the most emissions (34.5%), followed by Staff commute & Working from home (WFH) (20.6%) and Electricity used (16.2%). Scope 3 emissions (we can influence, but not control indirect GHG emissions), accounted for most emissions, followed by Scope 2 emissions from Electricity used. Table 1 shows the organisational emissions by scope and sector. Figure 1 shows the contribution of organisational emissions by sector.

Table 1 GHG emissions (tCO_2e) by scope and sector

EMISSIONS	2018/19 Base year	2019/20	2020/21	2021/22	2022/23
Scope 1	**53.5**	**35.5**	**49.4**	**27.1**	**18.4**
Stationary fuel	20.2	13.8	21.8	3.7	-
Transport fuel	33.1	21.6	27.4	23.5	18.4
Refrigerants	0.2	-	0.2	0.02	-
Scope 2	**10.6**	**15.3**	**19.5**	**25.6**	**39.8**
Electricity used	10.6	15.3	19.5	25.6	39.8
Scope 3	**218.1**	**110.7**	**111.7**	**129.1**	**187.7**
Business travel	116.9	39.3	43.7	22.9	84.9
Staff commute + WFH	38.6	26.9	36.3	47.0	50.6
ILT Kidzone event	15.4	15.2	-	26.3	13.4
Electricity T&D losses	0.9	1.4	1.8	2.4	4.6
Waste, wastewater, and water supply	3.0	3.2	3.5	4.8	2.5**
Freight	0.02	0.01	0.04	0.03	0.05
WTT*	43.4	24.6	26.4	25.6	31.6
Total emissions	**282.2**	**161.4**	**180.6**	**181.8**	**246.0**
Emissions intensity (tCO_2e per FTE)	**6.56**	**4.89**	**4.57**	**4.14**	**5.72**

**Well-To-Tank: all greenhouse gas emissions from the production, transportation, transformation, and distribution of the fuel used.*
***Since waste data for ILT Kidzone event were not available, these emissions are not included. It will be disclosed in the next emission report. Due to rounding, the numbers in the above table will not add correctly to give the total.*

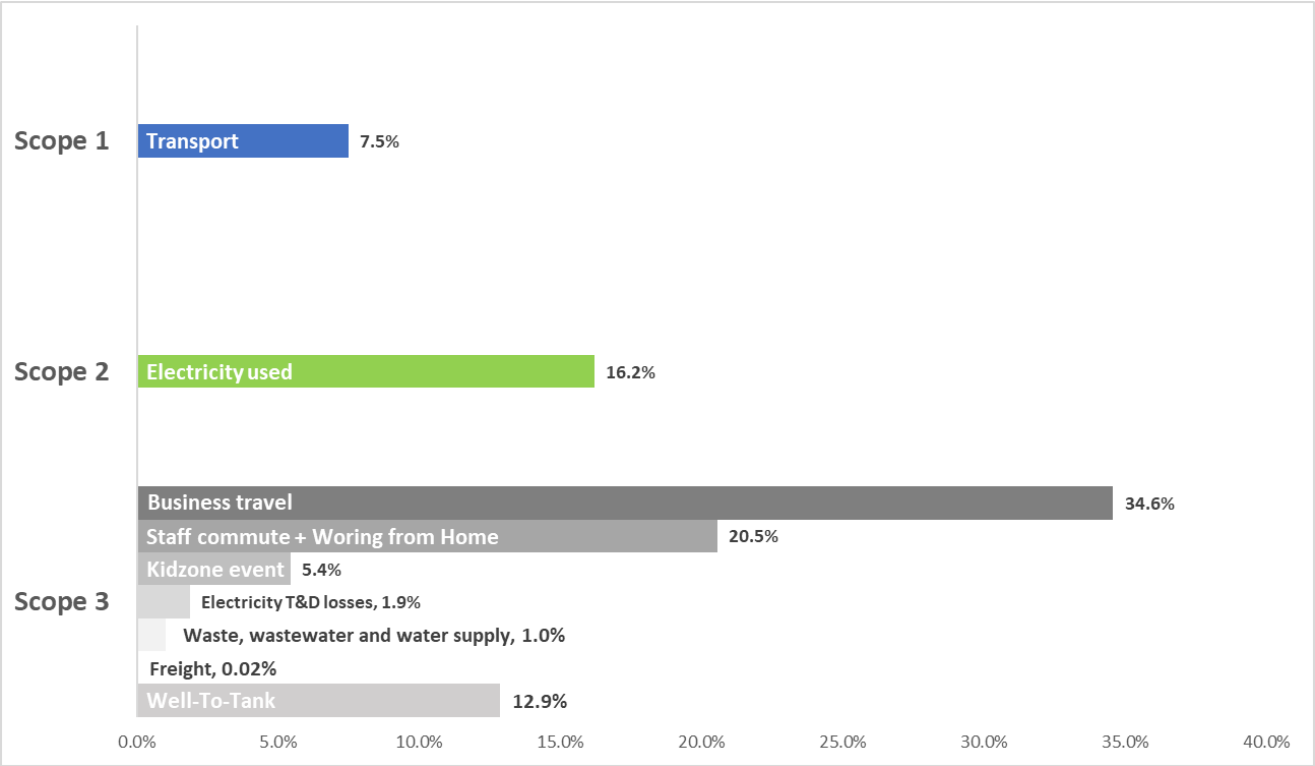

Figure 1 Great South's organisational emissions by sector for 2022/23

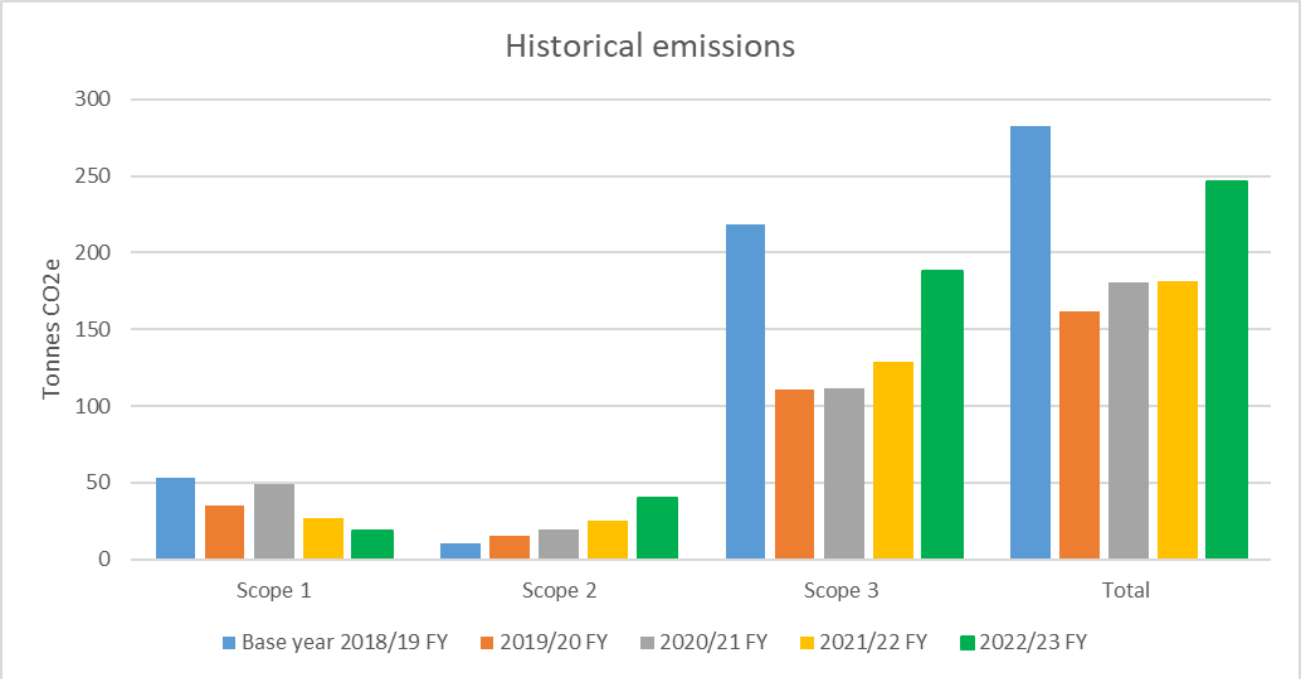

Figure 2 Summary of historical emissions inventories per scope

Changes from 2018 baseline:

Great South's total emissions decreased by 13% between 2018/19 and 2022/23. The changes are largely a result of the replacement of the old diesel boiler with heat pumps and switching to hybrid and plug-in hybrid vehicles.

- Electricity and Electricity T&D losses were the only sectors with increased emissions (277% and 419% respectively), attributed to Space Ops NZ's business growth.
- Stationary fuel emissions reached zero in August 2022 after replacing the diesel boiler with heat pumps.
- Transport fuel emissions decreased the most after stationary fuel emissions (14.7 tCO_2e or 44.3%) due to the replacement of petrol and diesel vehicles.
- Other sector emissions changed minimally.

Key findings:

- In 2022/23 GS emitted a total of 18.4 tCO_2e (Scope 1), 39.8 tCO_2e (Scope 2), and 187.7 tCO_2e (Scope 3). All scopes total 246.0 tCO_2e, a 13% (36.3 tCO_2e) reduction from the baseline.
  - Business travel is the largest contributing sector, accounting for 34.5% of total emissions, with domestic and international flights accounting for 96.0% of this. While these emissions initially declined compared to baseline, they increased significantly as the Covid-19 restrictions ended.
  - Staff commute & WFH are the next largest sources, accounting for 20.6% of emissions, with Staff commute making up 99.4%.
  - Electricity contributes for 16.2% of total emissions. As Space Ops NZ' business grows, emissions from electricity use increase significantly every year. 89% of electricity emissions are from the satellite ground station in Awarua.
- Emissions from Kidzone event are mainly from a coal boiler (90%). Southland Girls High School, the venue of the event, will replace their coal boilers with wood pellet boilers in April 2025[1], which is expected to be reduced the emissions by about 90%.

Main recommendation

- For Great South (GS) to become carbon neutral by 2025, it seems necessary to actively carry out carbon offsetting for the air travel, the largest and most difficult sector to reduce.

Reduction Targets

Great South is committed to managing and reducing its emissions in accordance with Te Ara Toitū – GS's Sustainability Plan. Table 2 provides details of the emission reduction targets to be implemented.

Table 2 Emission reduction targets against base year emissions 282.2 tCO2e

Target name	Report period	Reduction %	Reduction in tonnes (tCO2e)	Target year emissions (tCO2e)
35% emissions reduction	20/21 FY	36%	180.6	183.4
50% emissions reduction	21/22 FY	40%	168.0	141.1
60% emissions reduction	22/23 FY	13%	246.0	112.9
28% emissions reduction (Adjusted March 2024)	23/24 FY			203.1
Carbon neutral	24/25 FY			Offset residual emissions

[1] https://assets.education.govt.nz/public/Documents/Primary-Secondary/Property/MoE-BRP-High-Level-Programme-V7.pdf

Contents

Acronyms and Abbreviations

AR5	IPCC's fifth assessment report
CH_4	Methane
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
Electricity T&D losses	Electricity Transmission and distribution losses
EV	Electric Vehicle
FTE	Full-time equivalent
FY	Financial Year
GHG	Greenhouse Gas
GS	Great South, Southland Regional Development Agency
GWP	Global Warming Potential
HEV	Hybrid Electric Vehicle
IPCC	Intergovernmental Panel on Climate Change
NZECS	New Zealand Certificate System
PHEV	Plug-in Hybrid Electric Vehicle
SGHS	Southland Girls High School
T&D	Transmission and Distribution losses from purchased electricity
WFH	Working from home
WTT	Well-To-Tank, all greenhouse gas emissions from the production, transportation, transformation, and distribution of the fuel used

Introduction

This is Great South's (GS) fourth greenhouse gas (GHG) emissions inventory report, measuring GHG emissions from activities during the 2022/23 Financial Year (FY). It aims to share the progress GS has made towards reaching its goal of becoming carbon neutral by 2025 and becoming a low waste and water hero.

GS was established as Southland's regional development agency in March 2019 and is responsible for economic development and promotion of the Murihiku Southland region. Its vision is 'even better lives through sustainable regional development.'

GS is a council-controlled organisation, with eight shareholders (Invercargill City Council, Southland District Council, Gore District Council, Environment Southland, Invercargill Licensing Trust, Mataura Licensing Trust, Southland Chamber of Commerce and Southern Institute of Technology/Te Pūkenga) and member company, Community Trust South. GS is governed by an independent Board of Directors and has a memorandum of understanding with all four Murihiku Papatipu Rūnaka. GS receives funding from its shareholding councils to cover operational and core costs in line with agreed KPIs, Central Government agencies who contract GS to perform specific services, as well as private sector partners.

Statement of Intent

Great South's Statement of Intent 2023–2026 key priorities are:

1. Regional development leadership
2. Regional promotion
3. Business support and diversification
4. Net Zero Southland

Within the Net Zero Southland priority, its goals are to

- Encourage low impact industry
- Support the business sector to reduce carbon emissions
- Monitor emissions
- Sustainable destination management
- Energy planning

Intended users of this report include or will include, but are not limited to:

- Great South staff
- Great South shareholders
- General public

Persons responsible

Responsibility for the preparation of the inventory and report:

- Sustainability Planner
- Strategic Projects Engineer

Responsibility for reduction performance as well as reporting results to the Chief Executive

- Sustainability Committee

Assisting with background data and supporting information:

- GM Finance, IT and Facilities
- Conference and Events Manager
- Front Desk Administrator
- Visit Fiordland Manager

The GS emissions inventory will be included as an agenda at the GS Sustainability Committee meetings. These meetings will have at least one representative per business unit. Emissions performance and related projects will be reviewed along with follow-up actions, as and when required to ensure the organisation is on track for meeting our emissions performance targets (Table 3).

Reduction Targets

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28% emissions reduction (Adjusted March 2024)	23/24 FY			203.1
Carbon neutral	24/25 FY			Offset residual emissions

Staff Engagement

In June 2023 Te Ara Toitū –Sustainability Plan was launched. The Committee's role includes the full implementation of the plan and empowering GS to take positive action towards carbon neutrality and minimise its environmental impact. Great South's sustainability goals are:

1. Integrate environmental sustainability consideration in all we do
2. Be a carbon neutral organisation by 2025
3. Reduce waste and water consumption

Each goal has specific actions and KPIs that are intended to be achieved during the financial year. GS's staff are kept informed about our emissions reduction commitments through monthly general meetings, the company intranet, and the introduction of environmental awareness sessions.

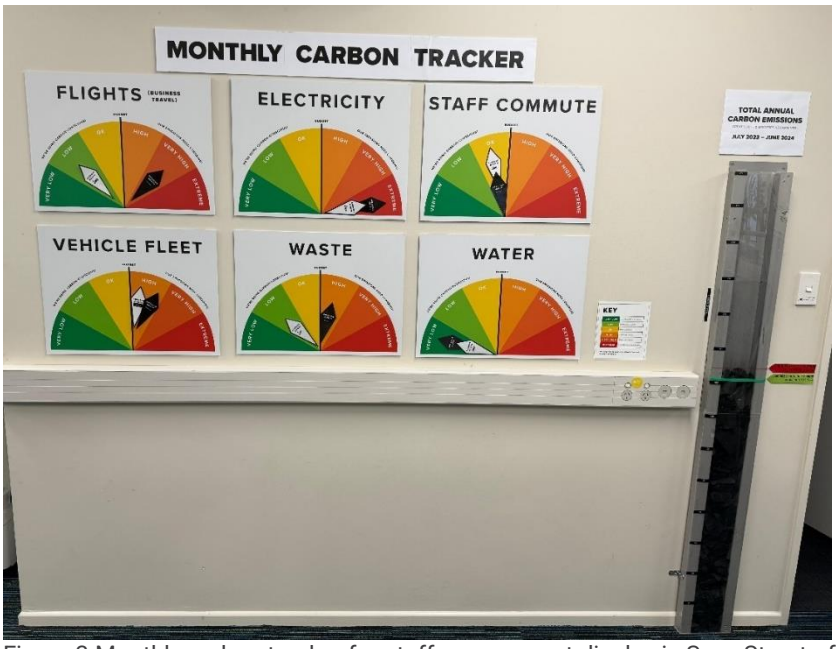

Figure 3 Monthly carbon tracker for staff engagement display in Spey Street office

Methodology

This GHG inventory was prepared in accordance with the international Standards for calculating GHG emissions. The standards followed are the World Resource Institute's 'Greenhouse gas protocol: A corporate accounting and reporting standard' (GHG Protocol) and ISO 14064-1:2018 'Specification with guidance at the organisation level for quantification and reporting of GHG emissions and removals'. In measuring this inventory, the five principles of ISO 14064-1:2018 were strictly applied.

Emissions factors were obtained from the Ministry for the Environment's '2023 Emission Factors Workbook' and UK government's 'Greenhouse gas reporting: conversion factors 2023'. The methodology used in measuring GS's organisational GHG inventory is illustrated in the following diagram:

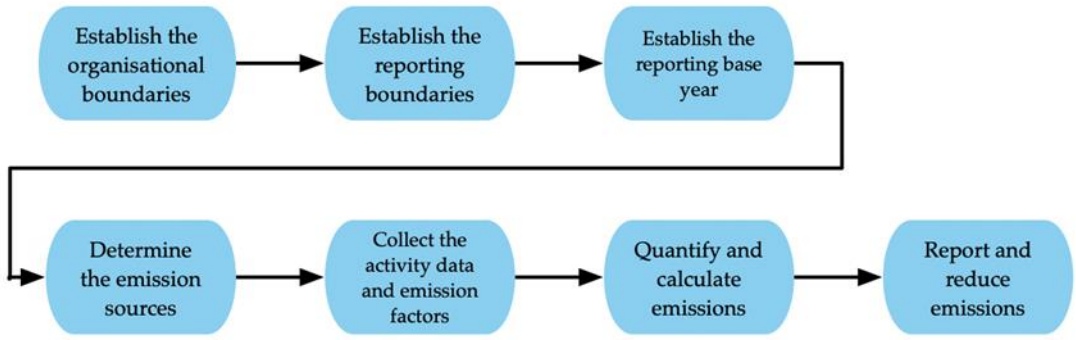

Figure 3 Methodology used.

Organisational boundary

Organisational boundaries were set with reference to the methodology described in the ISO 14064-1:2018 and the GHG Protocol 2004. The standard allows two distinct approaches to be used to consolidate GHG emissions: the equity share or control (either financial or operational) approaches[2].
An operational control approach was used to account for emissions. This consolidation approach aligns with our intended users. In particular, it is considered to be more effective at reflecting our carbon risk exposure across the subsidiaries in which we have 100% ownership (Space Ops), but no financial control. Figure 4 shows the organisational structure of Great South.

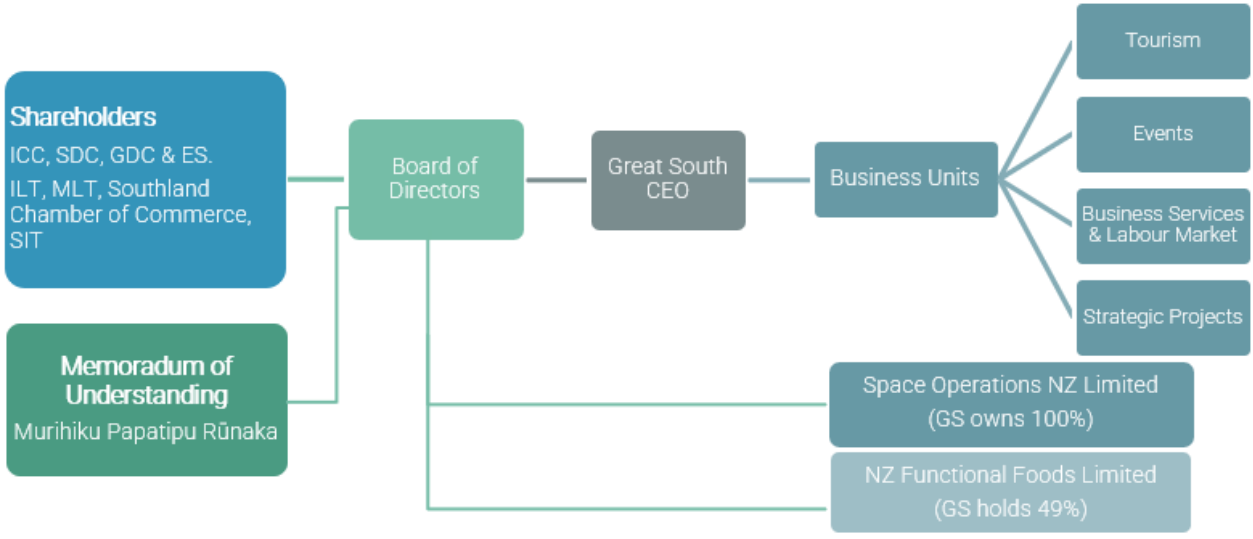

Figure 4 Southland Regional Development Agency Limited (trading as Great South) organisational structure

[2]Control: the organisation accounts for all GHG emissions and/or removals from facilities over which it has financial or operational control. Equity share: the organisation accounts for its portion of GHG emissions and/or removals from respective facilities.

Physical sites

A storage unit at 115 Clyde Street, Invercargill only uses lights. As power consumption data is not available, it is excluded from this inventory. GS has a 49% share in NZ Functional Foods and this facility is excluded under the control approach. The table below shows what physical sites have been included in the context of the entire organisational profile.

Table 4 Brief description of the structure (physical sites) included in this emission inventory.

Physical sites	Location	Description
Spey Street office	143 Spey Street, Invercargill 9810	Great South Head Office accommodates most staff. Two storey building, with an approximate floor area 760m^2 – 450m^2 on the first floor and 310m^2 on the ground floor. There are 4 meeting rooms and a board room, 2 kitchens, 2 bathrooms and 2 EV charging stations.
Te Anau office	116 Town Centre, Te Anau 9600	GS took acquired this office on April 1, 2021. The upper floor is 200m^2, with open plan office space, separated offices/meeting rooms, and one kitchenette and bathroom.
ILT Kidzone	328 Tweed Street, Invercargill 9812	Annual event run by GS held over five days in July 2023 at SGHS.
Hargest House (Space Ops office)	62 Deveron Street, Invercargill 9810	Space Ops NZ head office. 150m^2 open plan office space, shared use of one kitchenette and bathroom.
Awarua Station (Satellite ground and radio tracking Space Ops)	781 Colyer Road, Awarua, Invercargill	Awarua Station operates antenna and electronics for both clients and GS. 4.4 hectares property with a 70m^2 control centre (office and IT systems), a 17m^2 generator shed and 35 antennas.

GS (including Space Ops) has ten company cars and four physical sites, Spey St office, Te Anau office, Hargest House (Space Ops office), Awarua Satellite Ground Station and runs one main annual event – the ILT Kidzone event currently held at Southland Girls High School (SGHS).

Scope and Approach

As adapted from the GHG Protocol 2004, the emissions sources included in this inventory were classified into the following scopes.

- Scope 1: Direct GHG emissions from sources that are owned or controlled by the company. For example, emissions from combustion of fuel in vehicles owned or controlled by the organisation.
- Scope 2: Indirect GHG emissions (in the form of electricity, heat, or steam) from the generation of purchased energy that the organisation uses.
- Scope 3: Indirect GHG emissions that occur because of the company's activities but from sources not owned or controlled by the company. For example, air travel and staff commuting.

Reporting Period

Base year measurement period: 01/07/2018 to 30/06/2019. This base year period was selected because it represents the first year in which we have access to a materially complete set of data records for forming the inventory. A financial year was chosen to align to our annual reporting cycles.

Measurement period of this report: 01/07/2022 – 30/06/2023. The frequency of reporting will be annual.

GHG Information Management and monitoring procedures

GS is responsible for appropriate document retention, archiving, and record keeping for each emissions source. Ekos[3]' annual review requirement is in place to ensure any errors and emissions in the GHG inventory report is addressed.

Recalculation Policy

GS uses 2018/19 as baseline year. To accurately track progress towards carbon reduction targets, the base year emissions inventory will be adjusted for significant changes (>5% emission increase/decrease). Additionally, recalculations may occur for changes <5% if organisational structure changes occur.

Organisational structure changes: Including acquisition, divestment, mergers and permanent closures of business or facilities that existed during 2018/19.

Methodology changes: Include updated emission factors, improved data access/updated calculation methods or protocols, and the Global Warming Potential (GWP).

Other changes: We will recalculate our emissions may recalculate for: Discovery of significant error (>5% emission increase/decrease)., or a number of cumulative errors. Change in our organisational boundary[4] and change in our operational boundary[5].

Changes to methodology to FY 2021/22

Staff commute data for 2021/22 was extrapolated using an average of 1.33 per staff, as requested by EKOS certification to capture the nonrespondents. The total emissions from Staff commute and WFH for 2021/22 increased from 35.6 tCO_2e to 47.0 tCO_2e. As the Staff commute data changed, the WTT emissions were also changed correspondingly from 23.2 tCO_2e to 25.6 tCO_2e for 2021/22. Please see Appendix 6 for more details.

[3] Ekos Kamahi Limited is GS'S preferred supplier, as carbon certification company.
[4] Organisational boundary defines whether to account for GHG emissions by equity share or financial control.
[5] Operational boundary defines the scope of direct (Scope 1) and indirect emissions (Scope 2, Scope 3) for operations that fall within a company's established organisational boundary (WRI, 2004).

Results

This section details the 2022/23 emissions profile by scope and emissions sector, and changes from baseline.

Overview of Emissions

Total emissions came to 246.0 tonnes of carbon dioxide equivalent (tCO_2e). Scope 3 is the largest contributor to the total emissions for GS (76%), primarily from business travel and staff commute. There has been a 13% reduction in total emissions and per full-time employee since base year. However, compared to the previous year (2021/22), emissions from this sector have increased significantly by 35.3%. This increase is attributed to a surge in business travel, specifically international flights as Covid-19 restrictions ease and return to normal. Emissions intensity per Full time employee were 5.72 tCO_2e.

Table 5 Summary emissions (tCO_2e) by scope and category

Scope	Emissions category	2018/19 Base year	2019/20	2020/21	2021/22	2022/23
1	(1) Direct GHG Emissions	53.5	35.5	49.4	27.1	18.4
2	(2) Indirect GHG Emissions from Imported Energy	10.6	15.3	19.5	25.6	39.8
3	(3) Indirect GHG Emissions from Transportation & Distribution	155.5	66.2	80.1	69.9	135.5
	(4) Indirect GHG Emissions from products & services used by the organisation	62.7	44.5	31.7	59.2	52.1
	(5) Indirect GHG Emissions from the use of the Organisations Products	-	-	-	-	-
	(6) Indirect GHG Emissions from other sources	-	-	-	-	-
Total Gross emissions (Location Based)		282.2	161.4	180.6	181.8	246.0
less GHG removals / sinks		-	-	-	-	-
Purchased credits / Pre-offset (Location Based)		-	-	-	-	-
Total Net GHG emissions (Location Based)		**282.2**	**161.4**	**180.6**	**181.8**	**246.0**
Full Time Equivalent Employee (FTE)		43.0	33.0	39.5	43.9	43.0
Gross revenue		$4.4m*	$4.4m	$7.7m	$9.3m	$9.5m
Emissions intensity (tCO_2e per FTE per annum)		**6.56**	**4.89**	**4.57**	**4.14**	**5.72**
Emissions intensity (tCO_2e per $1m revenue per annum)		**64.1**	**36.6**	**23.6**	**19.7**	**26.0**

Due to rounding, the numbers in the above table will not add correctly to give the total.
**As Great South was established in March 2019, there was no revenue for 2018/19 FY. However, for comparison, the same revenue as in 2019/20 was applied in 2018/19 FY.*

Meaningful changes over the five years since the 2018/19 baseline inventory are the decrease in Scope 1, the increase in Scope 2 every year, and the decrease in Scope 3 between 2019/20 and 2021/22 due to the Covid-19 restrictions. Details of these noticeable changes will be addressed in each sector.

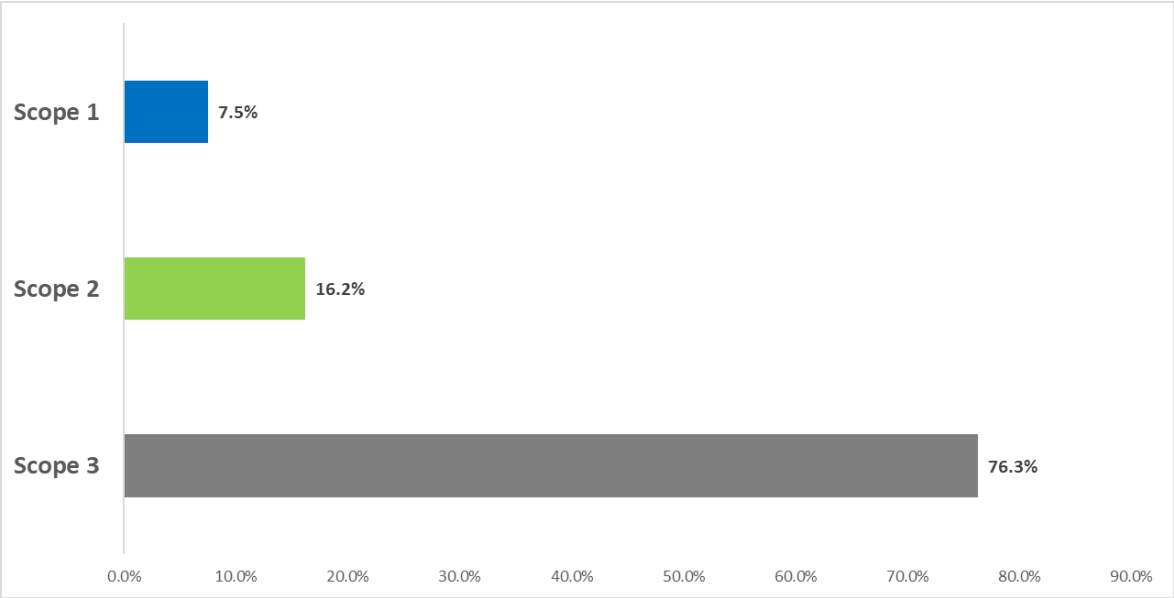

Figure 5 Emissions by scopes for this measurement period FY 2022-2023

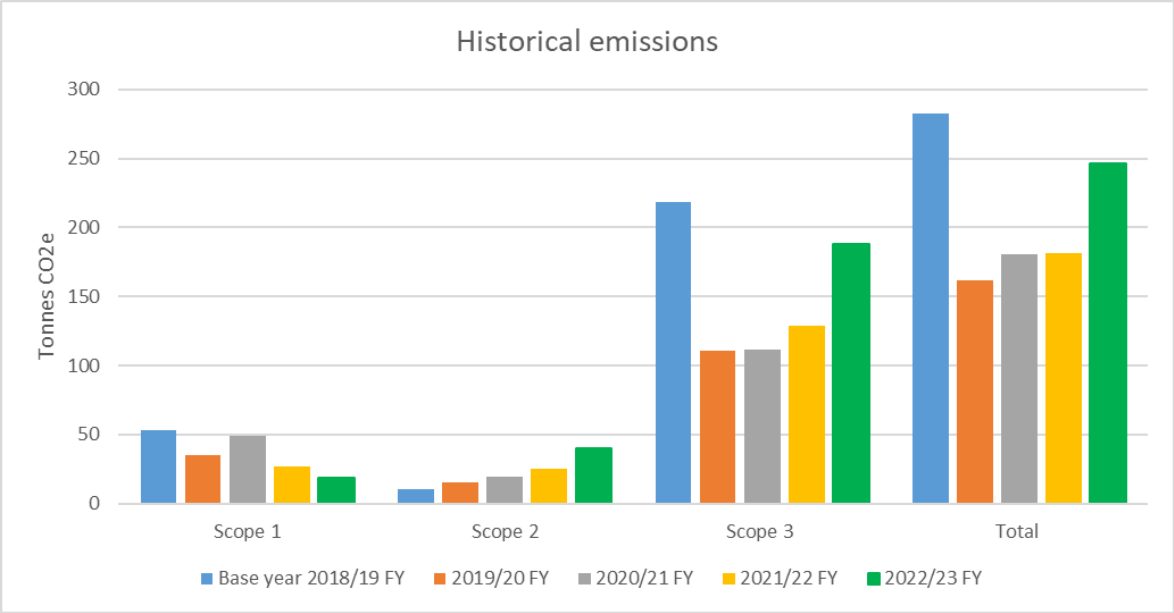

Figure 6 Summary of historical emissions inventories by scope

Scope 1

Scope 1 emissions represented 7.5% of total emissions in 2022/23 (18.4 tCO_2e), the lowest contributor to organisational emissions. The sole source of emissions was transport fuel.

Table 6 Scope 1 emissions by sector (tCO_2e)

EMISSIONS	2018/19 Base year	2019/20	2020/21	2021/22	2022/23
Stationary fuel	20.2	13.8	21.8	3.7	-
Transport fuel	33.1	21.6	27.4	23.5	18.4
Refrigerants	0.2	-	0.2	0.02	-
Total	**53.5**	**35.5**	**49.4**	**27.1**	**18.4**

Due to rounding, the numbers in the above table will not add correctly to give the total.

Emissions from the stationary fuel reached zero after replacing the diesel boiler with heat pumps and electric heaters in August 2022. Since 2018/19, the emissions from transport fuel decreased by 14.7 tCO_2e or 44.3% over the past five years by replacing petrol and diesel vehicles with hybrid and plug-in hybrid vehicles. Refrigerant emissions are negligible. The total emission under Scope 1 decreased by 35.1 tCO_2e or 65.5% since baseline, aligning with this year's carbon reduction targets.

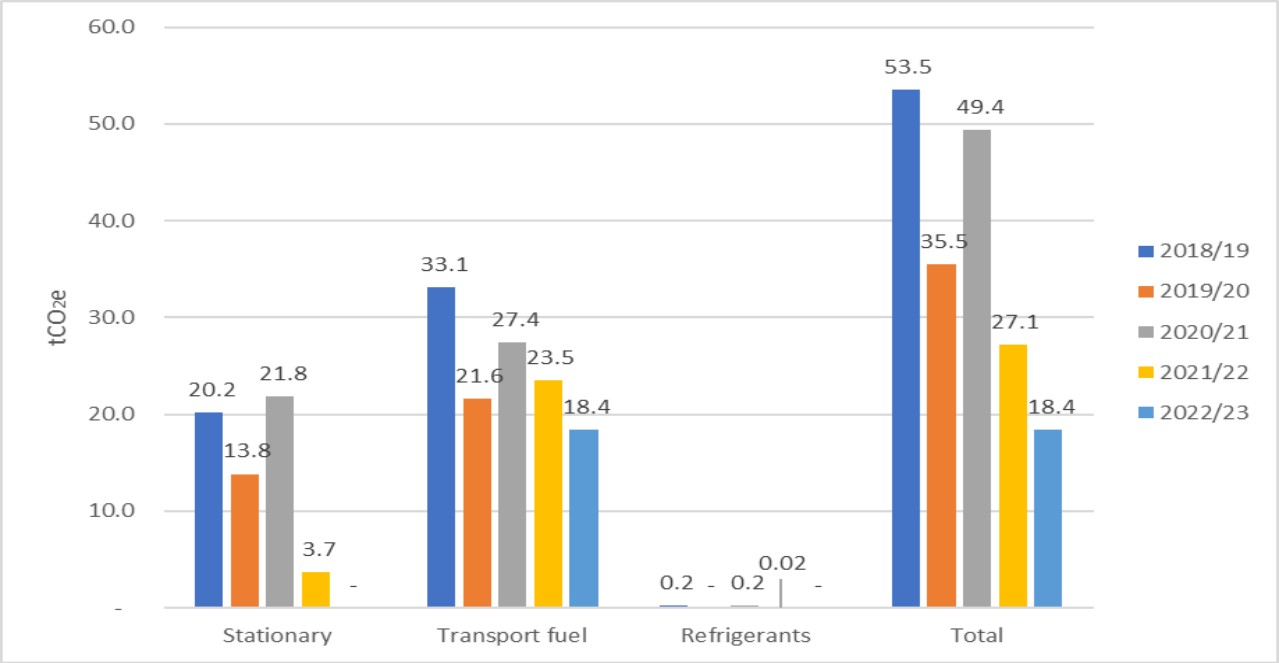

Figure 7 Scope 1 emissions by sector (tCO_2e)

Scope 2

Scope 2 emissions represented 16.2% of total emissions in 2022/23 (39.8 tCO_2e), mainly from electricity used in Awarua satellite ground station.

Electricity emissions consistently increase by about 60% each year due to Space Ops NZ's business growth. A breakdown of the emissions generated by site is provided in the table below.

Table 7 Scope 2 emissions (electricity) by site (tCO_2e)

EMISSIONS	2018/19 Base year	2019/20	2020/21	2021/22	2022/23
Awarua (Satellite ground station)	5.4	8.7	12.7	21.3	35.5
Spey Street office	4.6	4.7	5.0	3.9	4.1
Other sites*	0.6	1.8	1.8	0.4	0.2
Total	**10.6**	**15.3**	**19.5**	**25.6**	**39.8**

Due to rounding, the numbers in the above table will not add correctly to give the total.
** **2018/19** (i-SITE), **2019/20** (i-SITE, Locheil), **2020/21** (i-SITE, Locheil, Te Anau), **2021/22 & 2022/23** (Te Anau).*

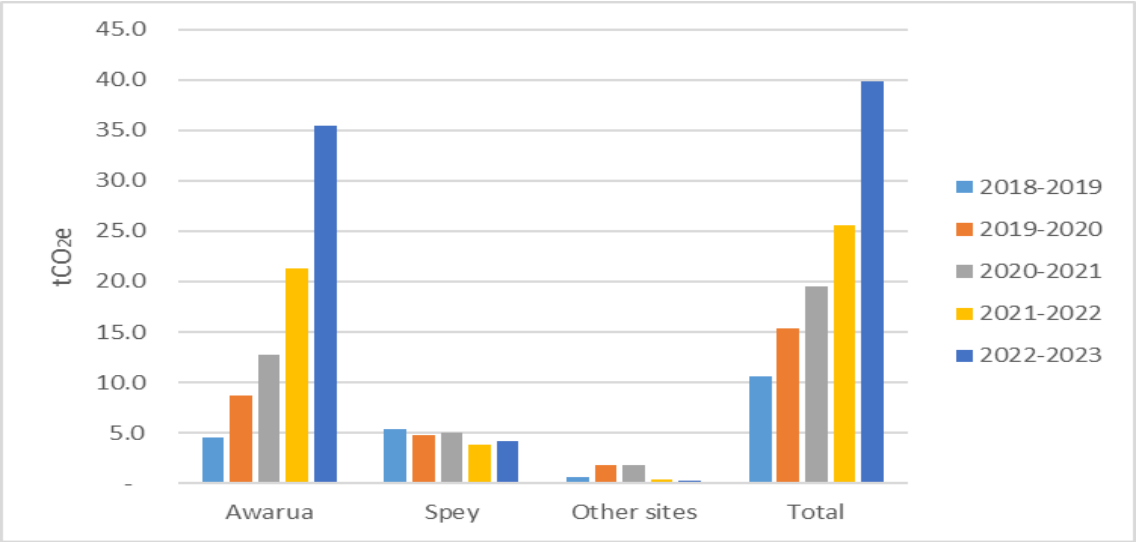

Figure 8 Scope 2 emissions (electricity) by site (tCO_2e)

Scope 3

Scope 3 accounted for 76.3% of the 2022/23 emissions (187.7 tCO_2e), with business travel as the largest contributor at 34.5% of the total emissions. Staff commute & WFH contributes 20.6%. A breakdown of the emissions generated by sector under Scope 3 is provided in the table below.

Table 8 Scope 3 emissions by sector (tCO_2e)

EMISSIONS			2018/19 Base year	2019/20	2020/21	2021/22	2022/23
Business travel			116.9	39.3	43.7	22.9	85.0
	Domestic flights	Great South	64.9	27.9	40.1	20.0	41.1
		Space Ops	0.7	1.9	2.2	0.4	4.1
	International flights	Great South	35.8	0.7	-	1.3	9.0
		Space Ops	9.4	7.6	-	-	27.3
	Hotel stay & Rental car	Great South	6.1	1.0	1.3	1.1	1.7
		Space Ops	-	0.2	-	-	1.8
Staff commute & WFH			38.6	26.9	36.3	47.0**	50.6***
Kidzone event			15.4	15.2	-	26.3	13.4
Electricity T&D losses			0.9	1.4	1.8	2.4	4.6
Waste, wastewater, and water supply			3.0	3.2	3.5	4.8	2.5
Freight			0.01	0.01	0.04	0.03	0.05
WTT*			43.4	24.6	26.4	25.6	31.6
Total			**218.1**	**110.6**	**111.7**	**129.1**	**187.7**

Due to rounding, the numbers in the above table will not add correctly to give the total.
**Well-To-Tank: all greenhouse gas emissions from the production, transportation, transformation, and distribution of the fuel used.*
***Staff commute & WFH data for 2021/22 was extrapolated using an average of 1.33 per staff, as requested by EKOS certification. The total FTE of 43.9, divided by 33 survey respondents, increased tCO2e from 35.6 to 47.0.*
****Staff commute & WFH data for 2022/23 was extrapolated using an average of 1.23 per staff, as requested by EKOS certification. The total FTE of 43, divided by 35 survey respondents, increased tCO2e from 41.2 to 50.6.*

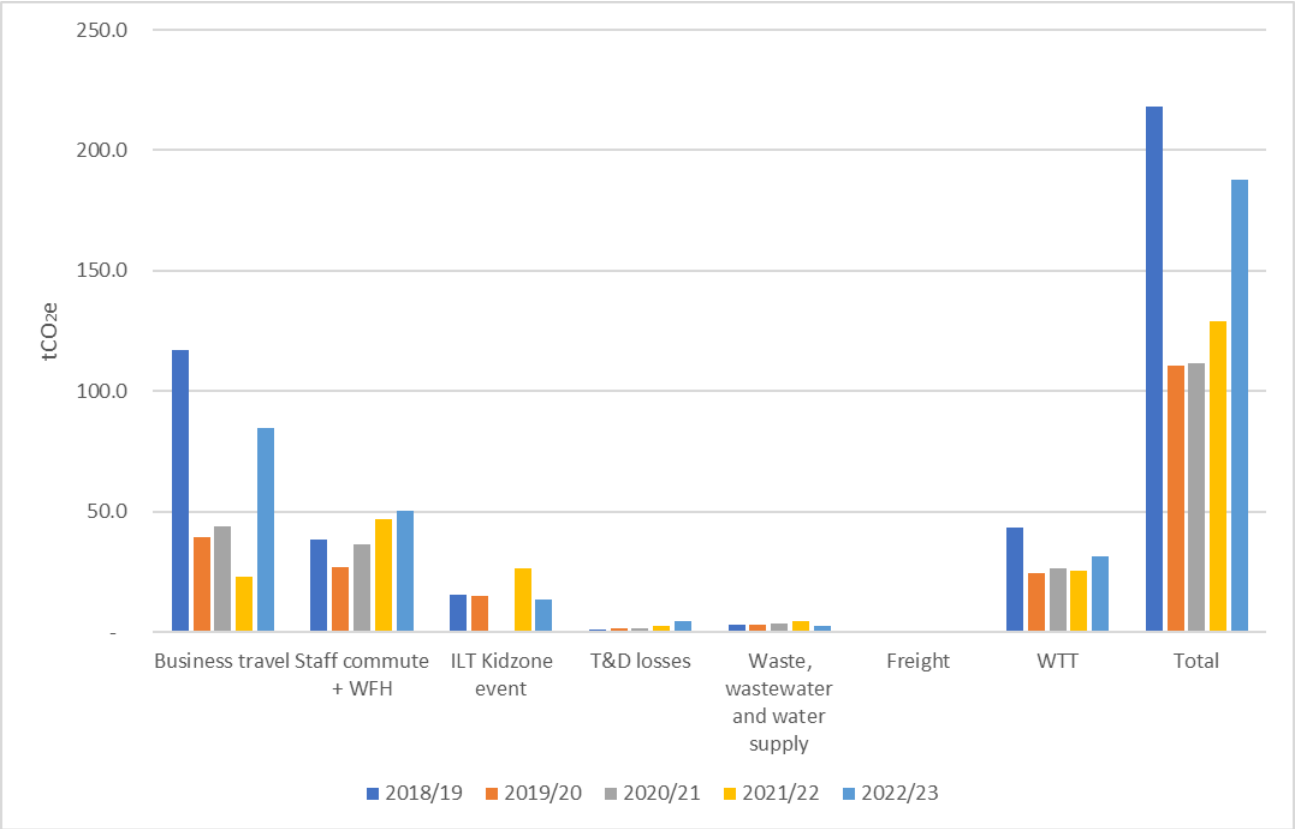

Figure 9 Scope 3 emissions by sector (tCO_2e)

Business travel emissions returned to pre-Covid levels in 2022/23, while emissions from the staff commute & WFH and Kidzone event remained fairly stable, with some Covid-related fluctuations.

Kidzone event emissions are mainly from coal boilers. However, SGHS, the venue of the event, will replace the boilers with wood pellet boilers in April 2025, which is expected to reduce the emissions from this sector by about 90% from 2025/26.

WTT is the third largest contributor to organisational emissions under Scope 3. If emissions from other sectors decrease, WTT emission will decrease accordingly. A breakdown of the WTT emissions generated by sector is provided in table 9.

Table 9 WTT emissions by sector (tCO_2e)

EMISSIONS	2018/19 Base year	2019/20	2020/21	2021/22	2022/23
Business travel	18.0	6.2	6.8	3.4	13.3
Staff commute	8.5	5.8	8.0	10.1*	10.9*
Transport fuel	8.0	5.2	6.6	5.7	4.6
Stationary fuel	4.7	3.2	5.1	0.9	-
Kidzone event	4.3	4.3	-	5.6	2.8
Freight	0.004	0.002	0.012	0.010	0.020
Total	**43.4**	**24.6**	**26.4**	**25.6**	**31.6**

***Staff commute & WFH data for 2022/23 was extrapolated using an average of 1.23 per staff, as requested by EKOS certification. The total FTE of 43, divided by 35 survey respondents, increased tCO2e from 41.2 to 50.6. The base year was not recalculated.*

Emissions Intensity

Per Full time Equivalent Employee (FTE)

Emissions per Full time Employee (FTE) decreased by 13% compared to the baseline year. Using FTEs as a unit of measurement for business activity ensures that increased activity, like more business travel, is not penalised when calculating emissions or making comparisons across organisations of varying sizes.

While FTEs affect emissions in areas such as wastewater and travel, some categories remain unchanged even given FTE fluctuations – such as electricity or building heating. Therefore, an increase in FTEs is expected to reduce emission per FTEs, as the fixed emissions are shared across more employees.

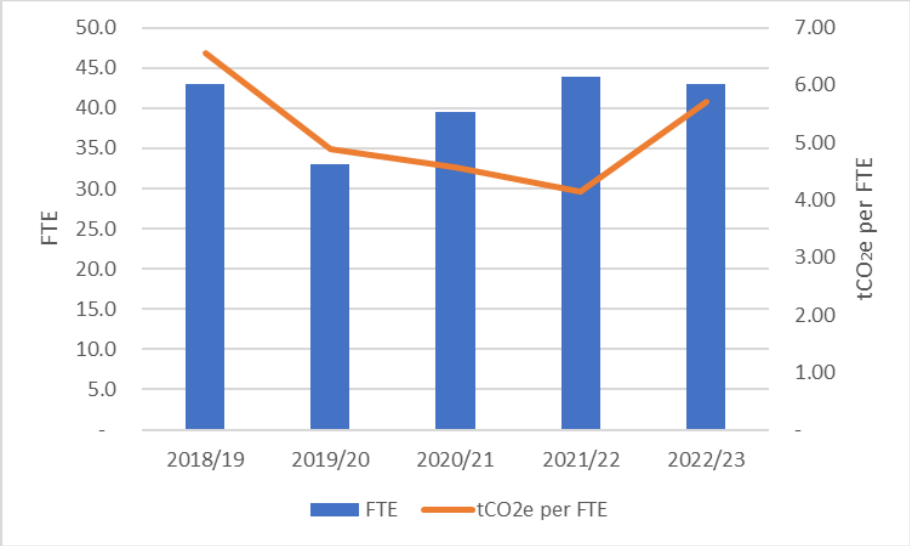

Figure 10 Summary of Great South's emissions per FTE over time, overlaid with actual FTEs reported in those periods.

Per revenue

For every $1,000,000 of revenue earned in the reporting period 26.0 tCO_2e were emitted. Based on $ 9,458,652 gross revenue, 2023 Annual Report.

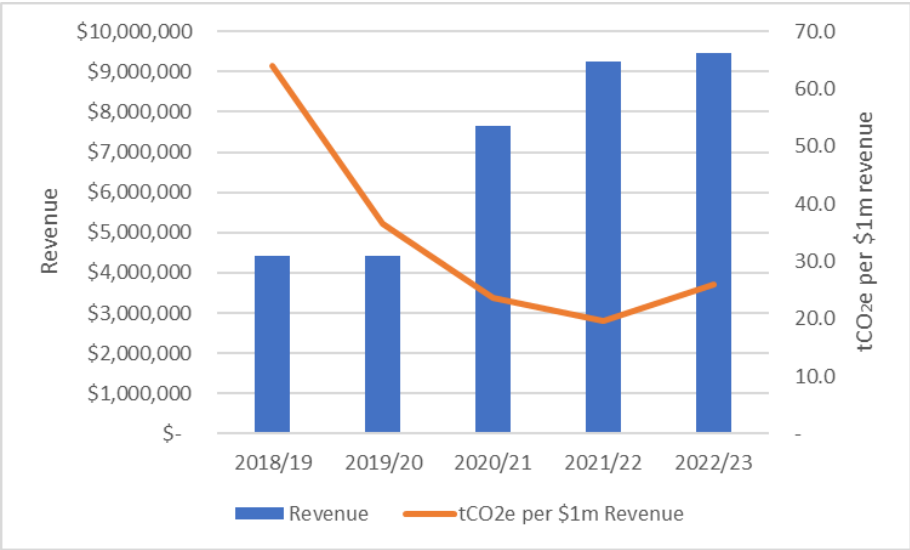

Figure 11 Summary of Great South's emissions per FTE over time, overlaid with actual FTEs reported in those periods.

As Great South was established in March 2019, there was no revenue for 2018/19 FY. However, for comparison, the same revenue as in 2019/20 was applied in 2018/19 FY.

Reduction Plan

The GS's Sustainability Committee implements the Te Ara Toitū – Great South's Sustainability plan 2023, prioritising and selecting solutions.

Reduction Targets

The organisation is committed to managing and reducing its emissions in accordance with the Plan, detailed in Table 10.

Table 10 Emission reduction targets against base year emissions 282.2 tCO_2e

Target name	Report period	Reduction %	Reduction in tonnes (tCO2e)	Target year emissions (tCO2e)
35% emissions reduction	20/21 FY	36%	180.6	183.4
50% emissions reduction	21/22 FY	40%	168.0	141.1
60% emissions reduction	22/23 FY	13%	246.0	112.9
28% emissions reduction (Adjusted March 2024)	23/24 FY			203.1
Carbon neutral	24/25 FY			Offset residual emissions

Reduction Projects

Specific projects outline in Table 11 aim to achieve our sustainability goals of carbon neutrality by 2025 and reducing waste and water consumption. We must demonstrate leadership by reporting and being accountable for the GHG emissions, actively reducing our carbon footprint, and maintaining a reputation as the region's preferred supplier for services and projects.

Table 11 Projects to reduce emissions.

Emission Source	Project	Responsibility	Completion date	Suggested Actions/Feedback
Air travel	Include mandatory offset of carbon emissions in the GS Travel Policy	People & Culture Manager	Jun 2024	Depending on the budget, conversations from the Statement of Intent process
Diesel & petrol company cars	Updated the GS Vehicle Policy section 4.11 'Purchased of Fleet-Emissions' to prioritise the procurement of EV and PHEV (plug-in hybrid vehicles).	People & Culture Manager	Oct 2023	Currently the policy states 'EV and hybrid', which is only standard hybrids.
	Conduct a six-month fleet audit	Sustainability Planner GM Finance, IT & Facilities	Jun 2024	In progress
	Convert all HEVs (hybrid-petrol) to smaller EVs when their leasing is ended.	GM Finance, IT & Facilities	Jun 2024	
Electricity Awarua	Explore on-site electricity generation	CEO Space Ops	Jun 2024	In progress
	Get a New Zealand Energy Certificate System (NZECS)	CEO Space Ops	TBA	Ongoing conversation with Sustainability Planner
Electricity Spey St	Replacing single glazing windows with double glazing	GM Finance, IT & Facilities	Jan 2024	**Completed**
	Investigating the capacity to add two 7kW EV chargers at Spey St. Two chargers for Spey	GM Finance, IT & Facilities	Jan 2024	In progress

Emission Source	Project	Responsibility	Completion date	Suggested Actions/Feedback
	St., and one charger for Space Ops.			
	Replace fluorescent tubes and incandescent bulbs with LED lights	Sustainability Planner	Jun 2024	**Completed**
ILT Kidzone event	Investigate options to reduce coal consumption during ILT Kidzone event	Conference & Events Manager	May 2024	In progress
General events	Give preference to low emissions and energy-efficient venues. Select in the first instance outdoor venue spaces	Conference & Events Manager	Jun 2024	Use of Events toolkit - Sustainability section when planning events
	If a low-emissions venue is not possible, offsetting carbon emissions is recommended for events facilitated by GS	Conference & Events Manager	Jun 2024	In progress
Staff Commuting	Set monthly incentives to promote the use of active transport among the staff	Sustainability Planner People & Culture Manager	Jun 2024	To do: Set a monthly calendar of incentive ideas. E.g., walking challenge in November
	Participate in the Aotearoa Bike Challenge 2024	Sustainability Planner	Feb 2024	**Completed** 2024, 3rd overall in Southland 2023, 16th overall in Southland
Waste	Educating staff on environmental awareness and zero waste principles	Sustainability Planner	Jun 2024	In progress
	Set a sustainable procurement policy to ensure at least 50% of our purchases focus on environmentally preferable products and services	GM Finance, IT & Facilities	Jun 2024	In progress
Water	Consider upgrading plumbing fittings in downstairs toilets and kitchen for water efficiency and leak prevention.	GM Finance, IT & Facilities	Jun 2024	

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Appendix 1: Detailed GHG Inventory

Additional inventory details are disclosed in the tables below, and further GHG emissions data is available on the spreadsheet accompanying this report.

1. Fugitive Emissions (refrigerants)

No sites have reported any top-ups of gas for this reporting period. Air conditioning is excluded from the inventory where offices are leased.

2. Combustion of Biomass

No known combustion of biomass occurred from the operation during this reporting period and therefore no emissions from the combustion of biomass are included in this inventory.

3. Land use and Land use Change

No deforestation has been undertaken by the organisation on land it owns during this measurement period. Therefore, no emissions from deforestation are included in this inventory.

4. Pre-verified data

Pre-verified data is included within the inventory are as follows: Electricity from a Carbon Neutral Source for the New Zealand office.

5. Double counting or pre-offsets

No double counting or offsets have been used by the organisation.

Table 12. GHG emissions, quantified separately for CO_2, CH_4, N_2O, NF_3, SF_6 and Total (tCO_2e)

Gas type	CO_2 (tCO_2e)	CH_4 (tCO_2e)	N_2O (tCO_2e)	NF_3 (tCO_2e)	SF_6 (tCO_2e)	HFC (tCO_2e)	PFC (tCO_2e)	Total (tCO_2e)
Direct emissions from stationary combustion	-	-	-	-	-	-	-	-
Direct emissions from mobile combustion	17.667	0.232	0.533	-	-	-	-	18.432
Direct emissions from Refrigerants	-	-	-	-	-	-	-	-
Electricity used	38.717	1.042	0.085	-	-	-	-	39.844
Business travel	81.207	0.175	0.850	-	-	-	-	84.932
Staff commuting & WFH	48.558	0.604	1.402					50.564*
Freight	0.050	0.00004	0.0012					0.052
Category 8 Upstream leased assets (Kidzone event)	13.233	0.069	0.052	-	-	-	-	13.354
Electricity T&D losses	4.490	0.121	0.010	-	-	-	-	4.620
Waste, water supply & wastewater treatment	0.020	2.469	0.052	-	-	-	-	2.541
WTT	-	-	-	-	-	-	-	31.626

Note: Due to rounding, the numbers in the above table will not add correctly to give the total.
As the emissions factors for the hotel stay and WTT by GHG type are not available, only total emissions from these sectors are provided, not by GHG type.
**Staff commute data for 2022/23 was extrapolated using an average of 1.23 per staff, as requested by EKOS certification. The total FTE of 43, divided by 35 survey respondents, increased tCO2e from 41.2 to 50.6. The base year was not recalculated.*

Appendix 2: Organisational / Reporting Boundaries

2.1 Emission source identification method and significance criteria

The GHG emissions sources included in this inventory were identified as those required, with reference to the methodology described in the ISO 14064-1:2018 standard and the Greenhouse Gas Protocol 2004. This included personal communications with relevant staff, review of invoices and staff commuting survey.

2.2 Included emissions sources and activity data collection.

As adapted from the GHG Protocol 2004, the emissions sources deemed significant for inclusion in this inventory were classified into the following scopes.

- Scope 1: Direct GHG emissions from sources that are owned or controlled by the company. For example, emissions from combustion of fuel in vehicles owned or controlled by the organisation.
- Scope 2: Indirect GHG emissions (in the form of electricity, heat, or steam) from the generation of purchased energy that the organisation uses.
- Scope 3: Indirect GHG emissions that occur as a consequence of the company's activities but from sources not owned or controlled by the company. For example, air travel and staff commuting.

For the report period 2022/23 FY ISO 14064-1:2018 categories will be use.

Category 1 direct emissions
Category 1 direct removals
Category 2 indirect emissions (imported energy)
Category 3 indirect emissions (transportation & distribution)
Category 4 indirect emissions (products & services used by organisation)
Category 5 indirect emissions (use of products from the organisation)
Category 6 indirect emissions (other sources)

Table 13. Inclusions and exclusions of emissions

Emissions category & sources	Ekos rule	Include/ Exclude/ Not relevant	Data source difficult/expensive to obtain	Limited level of influence	Insignificant / de minimis
Category 1) Direct GHG emissions and removals; (GHG Protocol Scope 1)					
Stationary combustion	Mandatory	Include	NA	NA	NA
Mobile combustion	Mandatory	Include	NA	NA	NA
Chemical and industrial processes	Mandatory	Not Relevant	NA	NA	NA
Fugitive emissions	Mandatory	Include	NA	NA	NA
Land use and Land Use changes	Mandatory	Not Relevant	NA	NA	NA
Category 2) Indirect GHG emissions from imported energy; (GHG Protocol Scope 2)					
Purchased electricity	Mandatory	Include	NA	NA	NA
Category 3) indirect GHG emissions from transportation (GHG Protocol Scope 3)					
Upstream transport and distribution of goods	Mandatory	Include	NA	NA	NA
Business travel	Mandatory	Include	NA	NA	NA
Employee commuting	Mandatory	Include	NA	NA	NA
Downstream transport and distribution of goods	Non-mandatory	Not Relevant	NA	NA	NA
Category 4) Indirect GHG emissions from products used by organization; (GHG Protocol Scope 3)					
Waste generated in operations	Mandatory	Include	NA	NA	NA
Fuel and energy related activities (T & D Losses)	Mandatory	Include	NA	NA	NA
Fuel and energy related activities (WTT emissions for fuel)	Mandatory	Include	NA	NA	NA
Emissions from purchased goods	Non-mandatory	Not Relevant	NA	NA	NA
Emissions from the use of services	Non-mandatory	Not Relevant	NA	NA	NA
Capital goods	Non-mandatory	Not Relevant	NA	NA	NA
Upstream leased assets	Non-mandatory	Include	NA	NA	NA
Category 5) Indirect GHG emissions associated with the use of products from the organization; (GHG Protocol Scope 3)					
Downstream leased assets	Mandatory	Not Relevant	NA	NA	NA
Processing of the sold product	Non-mandatory	Not Relevant	NA	NA	NA
Use stage of the product	Non-mandatory	Not Relevant	NA	NA	NA
End of life stage of the product	Non-mandatory	Not Relevant	NA	NA	NA
Franchises	Non-mandatory	Not Relevant	NA	NA	NA
Investments	Non-mandatory	Not Relevant	NA	NA	NA
Category 6) Indirect GHG emissions from other sources (GHG Protocol Scope 3)					
Working from home – Default	Non-mandatory	Include	NA	NA	NA

Appendix 3: Great South Financial Statements

During the 2022/23 financial year the organisation had a revenue of $9,458,652 and an expenditure of $8,900,543. Organisational activities can be summarised as the delivery of projects, services, and events. Most of GS's expenditure was in its staff and other expenses. The only exception to this was the events it ran.

Table 14. Summary of GS areas of work, revenue, and expenditure budget 2022/23

Areas of work	Expenditure 2022/23	Our work examples
Regional Economic Development	$ 3,039,438	Support Space Operations New Zealand Ltd. Support implementation of Net Zero Southland Report Develop Southland Regional Energy Strategy Provide tools to support land use change
Business Support Services	$ 651,671	Administer tourism business funding. Support labour market needs Deliver the Southland Youth Futures programme
Regional Tourism Development	$ 2,188,847	Destination marketing and development Tourism product development
Regional Event Delivery	$ 1,120,059	Southlandnz.com Support key events ILT Kidzone event
Total	**$7,000,015**	

Appendix 4: Quantified Inventory of Emissions and Removals

A calculation methodology has been used for quantifying the emissions inventory based on the following calculation approach, unless otherwise stated below:

Emissions = activity data x emissions factor

The quantification approach has not changed since the previous measurement period.
All emissions were calculated using emissions factors and Global Warming Potentials provided by the MfE.
Global Warming Potentials (GWP) from the IPCC fifth assessment report (AR5) are used.

Historical recalculations

Historical recalculations have been conducted for all the reporting periods. Since more detailed activity data are available, the Well-to-Tank (WTT) emission was divided into more detail and calculated using corresponding emission factors. And for consistency, the emission factors based on the GWPs from the IPCC AR5, used. The emissions for the base year were amended to a new total of 282.2 tCO_2e.

Appendix 5: GHG emission sources included in the inventory.

Emissions Sources	Scope and Category	Data Source	Data collection unit	Data quality	Uncertainty (description)
Mobile fuel	Scope 1 Category 1	Fuel card purchase data	LeasePlan-Litres	High	There may have been some fuel that was not purchased on fuel card; however, this is likely to be minimal as a fuel card is kept in each car. Driver behaviour is not taken into account.
Refrigerants		Plate units. Gas type and kg	GS team- Kg	Medium	Minimal use of refrigerants. Refrigerants were only reported in base year 2018/19 and when new units were purchased in 2021/22, using Method B: Screening. The Spey Street building is leased, but refrigerant units are owned.
Electricity used	Scope 2 Category 2	Contact Energy and Meridian invoices	GS Finance team- kWh	High	Calculated exact kWh usage from electricity invoices for Spey Street and Te Anau office, Awarua.
Business travel	Scope 3 Category 3	Orbit report. Flights, accommodation, and rental cars.	GS Finance team - p.km km	High	There may be some flights booked outside Orbit and reimbursed to staff have not been included. Additionally, there may be data gaps in the km of rental cars in Orbit Reports. When these gaps are identified, an email is sent to request additional information.
Staff commute		Staff commute survey	GS team- km	Low-Medium	Survey carried out over a set period – provides a snapshot in time that is extrapolated to cover the whole reporting period. Staff and commuting changes will have occurred outside the survey window that are not represented.
Working from home		Staff commute survey	GS team-Days	Low	Survey carried out over a set period – provides a snapshot in time that is extrapolated to cover the whole reporting period. Staff and commuting changes will have occurred outside the survey window that are not represented.
Freight		Front desk courier register	GS administration team-tkm	Medium	Actual weights are not recorded, therefore estimated weights are likely to provide a somewhat inaccurate measure. Sticker may not accurately represent type/size of parcels - i.e., staff may use the wrong sticker, with the difference paid later by accounts. Incoming freight is also not captured here.
Water supply and wastewater	Scope 3 Category 4	Meter reading records	GS administration team-Litres	Medium-High	Only Spey Street office water meter is read. There is not information of water consumption and wastage in Te Anau or Awarua. However, this is likely to be minimal.
Transmission & distribution losses		Contact Energy and Meridian invoices	GS Finance team- kWh	High	Calculated exact kWh usage from contact receipts for Spey Street and Te Anau office, Awarua and Kidzone. There is not electricity invoice for Hargest House.

Waste		Waste reading records	GS administration team-Litres	High	Waste weighed each time the bins are emptied at the Spey Street and Te Anau offices. This occurs daily, every second day or weekly. Scale accuracy and correct reading are not taken into account.
Upstream leased assets		Invoice from James Hargest college (Sept19), Heat (Coal) $3,903.48 charged for heat/coal.	GS events team-kg	Medium	Sub-bituminous coal. Kidzone. There is not electricity invoice for Hargest House. Coal and electricity consumption is estimated by the facility manager.
Well-to-tank		Above data sources	GS team-tkm, pkm, km, kg, and l.	Medium	As there is no WTT emission factors for New Zealand, UK's emission factors are used. And as UK's emission factors for overseas electricity are not available, WTT emissions for electricity and electricity T&D losses are not calculated. When WTT emission factors for electricity and electricity T&D losses, it will be calculated.

Appendix 6: Recalculation

Staff commute data for 2022/23 was extrapolated using an average of 1.23 per staff, as requested by EKOS certification. The same methodology was used for the Staff commute data for 2021/2022.
The total emissions from Staff commute and WFH for 2021/22 and 2022/23 were increased from 35.6 tCO_2e to 47.0 tCO_2e and from 41.2 tCO_2e to 50.6 tCO_2e, respectively. As the Staff commute data changed, the WTT emissions were also changed correspondingly from 23.2 tCO_2e to 25.6 tCO_2e for 2021/22 and from 29.6 tCO_2e to 31.6 tCO_2e for 2022/23.